

ANTH 130
Section 02—Relethford
Study Guide for Exam # 2
Fall 2009

- The following is a list of terms and concepts that might be on the exam. Nothing will be on the exam that is not on this list (although not everything on this list will necessarily be on the exam). Because the exams are based on material from *both* lectures and assigned readings, you should use this study guide to coordinate the material from your lecture and readings notes.
- *Although many of these topics are covered in both lecture and the readings, please note that a number of topics covered in the readings will not be covered in class. There are also some topics and examples covered in class that are not covered in the readings.*
- In some cases, lecture material will update information from the text. In case of any discrepancy between information in lecture and text, make sure you use the information from lecture.

Primate behavior and ecology

Lectures: 9/30, 10/2

Readings: Chapter 5 (pp. 139–153), Chapter 6 (pp. 160–166, 172–189)

- The mother-infant bond in primate societies
- Paternal care in primate societies
- Primate social groups (one-male/one-female, one-male/multifemale, one-female/multimale, multimale/multifemale)
- Which of the above social groups is the most commonly found in primate societies?
- Importance of grooming in primate societies
- Dominance hierarchies and the factors that affect dominance rank
- Sexual dimorphism
- Baboon environment
- Dominance and social organization in baboons
- List the Asian apes

- List the African apes
- Typical types of movement in each of the apes (gibbons, orangutans, gorillas, chimpanzees, bonobos)
- Social groups found in each of the apes (gibbons, orangutans, gorillas, chimpanzees, bonobos)
- Dominance hierarchies in gorillas, chimpanzees, and bonobos

The human species

Lectures: 10/5, 10/7

Readings: Chapter 7

- Brain size of humans relative to brain size expected based on body size
- What percentage of our metabolic energy does the brain use?
- Anatomical characteristics of bipedalism: knees, pelvis, big toe
- Human canine teeth compared with ape canine teeth
- Changes in the rate of body growth during a human's life
- Differences in growth rates between brain/head, body size, and sexual maturation
- Unique characteristics of human postnatal growth
- Types of tool making and tool use in apes
- Culture in chimpanzees
- Language acquisition experiments in apes—what have they been able to learn?

The fossil record

Lectures: 10/9, 10/12

Readings: Chapter 8

- Relative versus chronometric dating

- Stratigraphy
- Carbon-14 dating
- Argon dating
- Paleomagnetic reversal
- Identifying sex differences from skeletal remains (in general terms)
- Identifying age differences from teeth and skeletal remains (in general terms)
- How old is the earth?
- Major events during the Paleozoic Era? (You do not need to know the specific dates of the geologic eras)
- The mammal-like reptiles
- Major events during the Mesozoic Era?
- Major events during the Cenozoic Era?
- Impact of dinosaur extinction on mammalian evolution

Primate origins and evolution

Lectures: 10/14, 10/16

Readings: Chapter 9

- Continental drift
- Major event in primate evolution during the Eocene epoch
- *Carpolestes* (and the order of evolution of grasping hands and depth perception)
- Major event in primate evolution during the Eocene epoch
- Major event in primate evolution during the Oligocene epoch
- The origin of the New World monkeys
- Major event in primate evolution during the Miocene epoch

- Ape and monkey traits found in *Proconsul*
- Who are the descendants of *Proconsul*?
- Who are the descendants of *Sivapithecus*?
- What was *Gigantopithecus*?
- Number of ape species alive today compared with the number of apes species that lived 10 to 20 million years ago
- Genetic estimates (molecular dating) of when the hominin line split off from the apes—how many millions of years ago?

The beginnings of human evolution

Lectures: 10/19, 10/21, 10/23

Readings: Chapter 10

See also the chart at the end of the study guide for further review

- On what continent did the first hominins evolve?
- What unique human trait appeared *first* in hominin evolution?
- What can we say about bipedalism in *Sahelanthropus*, *Orrorin*, and *Ardipithecus*?
- Brain size and facial protrusion of all australopiths (relative to living apes and humans—you need not know the exact brain sizes)
- *Australopithecus anamensis*: evidence of bipedalism
- *Australopithecus anamensis*: canine size
- Bipedalism in *Australopithecus afarensis*
- The teeth of *Australopithecus afarensis* compared with living apes and humans
- The robust australopiths: size of the back teeth and jaws
- The robust australopiths: cranial and facial characteristics
- The robust australopiths: diet

- What australopiths are possible ancestors of the genus *Homo*?
- Evidence of stone tool use in *Australopithecus garhi*
- Who was Piltdown Man?
- Hypotheses about the origin of bipedalism:
 - carrying food and infants
 - energy efficiency
 - heat stress
 - bipedal walking in trees

The origin of the genus *Homo*

Lectures: 10/26, 10/28

Readings: Chapter 11 (pp. 303–320)

See also the chart at the end of the study guide for further review

- Defining characteristics of the genus *Homo*
- Where did *Homo habilis* live?
- *Homo habilis*: brain size relative to earlier hominins (you need not know the exact brain sizes)
- *Homo habilis*: differences in bipedalism from later humans
- What were Oldowan tools and who first invented them?
- How were Oldowan tools used?
- On what continents did *Homo erectus* live?
- *Homo erectus*: brain size relative to modern humans (you need not know the exact brain size)
- Anatomy of *Homo erectus*
 - cranial shape

- brow ridges
- bipedal anatomy
- *Homo erectus*: changes in diet
- *Homo erectus*: use of scavenging versus hunting to get meat
- Acheulian tools (especially hand axes)—how are they made and who first invented them?
- Use of fire in *Homo erectus*
- What are the different interpretations of the fossils in the species *Homo floresiensis* (“The Hobbit”)?

Australopith Species

Note: The following table provides a summary (and updated information) of the australopith species discussed in class. The information in the first three columns (Type of hominin, Species, and Date) will be provided to you during the exam.

Type of hominin	Species	Date*	Location	Bipedalism	Brain size	Skull and teeth	Evidence of culture
The first possible hominins	<i>Sahelanthropus tchadensis</i> <i>Orrorin tugenensis</i> <i>Ardipithecus kadabba</i> <i>Ardipithecus ramidus</i>	6–7 Ma 6 Ma 5.8–5.2 Ma 4.4 Ma	Africa	Suggestive evidence of bipedalism, but not definite	Ape-sized	Varies by species; in general, these forms show a mixture of hominin and ape traits	No evidence of stone tools
Primitive hominins	<i>Australopithecus anamensis</i> <i>Australopithecus afarensis</i> <i>Kenyanthropus platyops</i>	4.2–3.9 Ma 3.7–3.0 Ma 3.5–3.2 Ma	Africa	Bipedal, but retaining some primitive traits that suggest climbing ability	Ape-sized	Varies by species; in general, protruding faces and larger canine teeth	No evidence of stone tools
“Robust” australopiths	<i>Australopithecus aethiopicus</i> <i>Australopithecus robustus</i> <i>Australopithecus boisei</i>	2.5 Ma 2.0–1.4 Ma 2.4–1.4 Ma	Africa	Bipedal, but not well known	Ape-sized	Large back teeth and jaws; large cheekbones and face; often show sagittal crest	No evidence of stone tools
Other later australopiths	<i>Australopithecus africanus</i> <i>Australopithecus garhi</i>	3.3–2.5 Ma 2.5 Ma	Africa	Bipedal, but retaining some primitive traits that suggest climbing ability	Ape-sized	Face and teeth not as large as robust australopiths	Butchered animals bones (suggesting stone tools) found with <i>A. garhi</i>

*MA = millions of years ago

Species in the Genus *Homo*

Note: The following table provides a summary (and updated information) of the species in the genus *Homo* discussed in class (except for the Hobbit). The information in the first two columns (Species, and Date) will be provided to you during the exam.

Species	Date*	Location	Bipedalism	Brain size	Skull and teeth	Evidence of Culture
<i>Homo habilis</i>	1.9–1.4 Ma	Africa	Bipedal, but retaining some primitive traits that suggest climbing ability	Larger than earlier hominins but not as large as modern humans (about half the size)	Smaller face and teeth than earlier hominins	Makers of Oldowan tools; butchering of animals
<i>Homo erectus</i>	1.9 Ma–40 ka	Africa, Asia, Eastern Europe (first species to leave Africa)	Modern bipedalism; first appearance of modern limb proportions	Larger than earlier hominins but not as large as modern humans (roughly 70% the size)	Smaller face and teeth than earlier hominins, but still larger than modern humans	Continues using Oldowan tools; invents Acheulian tools; significant addition of meat to diet mostly through scavenging and some hunting; use of fire

*MA = millions of years ago, ka = thousands of years ago